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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/826,622

04/16/2004

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EXAMINER

SINGH, PREM C

ART UNIT

PAPER NUMBER

1764

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/23/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/826,622	BOUCHER ASHE, HEATHER A.	
	Examiner	Art Unit	
	Prem C. Singh	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/22/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

2. Claims 18, 19, and 25 are objected to because of the following informalities:

Claim 18 (Line 1): "the removal" should be deleted.

Claim 18 (line 2) and claim 19 (line 2): "aromatics-rich raffinate" should be corrected to "aromatics-lean raffinate".

Appropriate correction is required.

Claim 25 (line 6): an extra "t" should be deleted.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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5. Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soled et al (WO 00/42128) in view of Summers (US Patent 3,244,614).

6. With respect to claim 1; Soled discloses a hydrocracking process for petroleum feedstocks. The process comprises:

(a) A feedstock is subjected to hydrocracking in a first zone in the presence of the bulk metal catalyst under hydrocracking conditions (See page 8, paragraph 1);

(b) The hydrocrackate may be further processed by fractionation to obtain a distillate lubricating oil fraction (See page 8, paragraph 3);

(c) This distillate fraction may then be solvent extracted (See page 8, paragraph 3);

(d), (e), (g) Raffinate from solvent extraction may then be further processed by a combination of dewaxing and/or hydrofinishing (See page 8, paragraph 3).

It is to be noted that Soled does not specifically mention about the first bottoms fraction but the distillate lubricating oil fraction in the invention is the same as the first bottoms fraction.

Although Soled does not specifically mention about aromatics-rich extract solution and aromatics-lean raffinate solution, the solvent extraction disclosed by Soled inherently produces extract and raffinate streams.

Soled does not teach a fractionation step (f) as claimed.

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Summers discloses a solvent refining and dewaxing process and uses a solvent separation zone (65) between solvent dewaxing (59) and hydrofinishing zone (70), and recycling the solvent back to the dewaxing step (See figure and column 6, lines 33-37).

Since Soled and Summers disclose production of high quality lube oil using similar feedstocks, and process steps, it would have been obvious to one skilled in the art at the time the invention was made to modify Soled invention and introduce a device to separate the solvent as disclosed by Summers, which could be a fractionation device as claimed, to recover the solvent and recycle to the dewaxing step.

7. With respect to claim 2, Soled discloses, " For purpose of this invention, lubricating oil or lube oil is the part of the hydrocarbon feedstock having boiling point of at least 315°C" (Page 7, paragraph 1).

8. With respect to claim 3, Soled discloses hydrocarbon feed stocks with initial boiling point of 315°C as mentioned under claim 2 and a wax content of 50% or more (See page 10, paragraph 1).

Soled does not specifically mention about 10% distillation point and a viscosity index of up to 200 or more.

Since Soled is mentioning initial boiling point, it would have been obvious to one skilled in the art at the time the invention was made to modify Soled invention and specify 10% boiling point to properly characterize the feedstock.

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Soled discloses the viscosity index of products obtained in the process to be greater than 120 (See page 9, paragraph 3). Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify Soled invention and use hydrocarbon feedstocks with viscosity index of 200 or more, as claimed, to produce a high quality base stock.

9. With respect to claims 4 and 5, Soled discloses, "Feeds for hydroprocessing include reduced crudes, hydrocrackates, raffinates, hydrotreated oils, atmospheric and vacuum gas oils, coker gas oils, atmospheric and vacuum residues, deasphalted oils, dewaxed oils, slack waxes, Fischer-Tropsch waxes and mixtures thereof." (Page 6, paragraph 1).

10. With respect to claims 6-8, Soled discloses, "Preferred crystalline metal oxides are molecular sieves including zeolites and SAPO. Preferred zeolites include zeolite X and Y which may be supported on a refractory metal oxide. Preferred amorphous metal oxides include silica-alumina." (Page 8, paragraph 2). "Binder materials to be applied in the process of the invention may be any materials including silica-alumina, titania, zirconia, or mixtures thereof." (Page 25, paragraph 5; page 26, paragraph 1). "A zeolite is preferably added if the resulting composition shall be applied in hydrocracking. The amount of cracking material may vary from 0 to 80 wt% based on the total weight of the catalyst composition." (Page 31, paragraph 3). Soled also discloses, "Suitable additional transition metals are e.g., rhenium, ruthenium rhodium,

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iridium, chromium, vanadium, iron, cobalt, platinum, palladium, cobalt nickel, molybdenum, or tungsten. These metals can be added at any stage of the process of the present invention prior to the shaping step." (Page 32, paragraph 2).

Soled does not specifically mention about the pore diameter of the molecular sieves.

Since Soled is using similar molecular sieves (zeolite X and Y) as used by the Applicant, they will inherently have uniform pore diameters as claimed.

11. With respect to claim 9, Soled does not disclose the total pressure and gas hourly space velocity.

However, Soled discloses that hydrocracking conditions include temperatures of from 300-480°C, hydrogen pressures from 1000 to 3500 psig, liquid hourly space velocity from 0.2 to 4 (See page 8, paragraph 1).

Since Soled invention discloses liquid hourly space velocity and hydrogen pressure and, it would have been obvious to one skilled in the art at the time the invention was made to specify LHSV of Soled in terms of Applicant's gas hourly space velocity and similarly, hydrogen pressure of Soled invention in terms of Applicant's total pressure.

12. With respect to claims 10 and 11, Soled discloses use of a fractionation step, but does not mention using specifically atmospheric or vacuum distillation column. It would have been obvious to one skilled in the art at the time the invention was made to modify

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Soled invention and use any fractionation means, including those claimed, for an effective separation absent a showing of criticality.

13. With respect to claim 12, Soled does not disclose the mid boiling range and viscosity of the first bottoms fraction.

Since Soled is using the claimed fraction in the solvent extraction process as discussed under claim 1, and also since Soled is using feedstocks similar to the Applicant's, it is expected that the mid boiling range and the viscosity of the stocks will be similar as claimed.

14. With respect to claims 13-15, Soled discloses, "This distillate fraction may then be solvent extracted with conventional solvents such as furfural, phenol, or n-methyl-2-pyrrolidone (NMP) under solvent extraction conditions." (Page 8, paragraph 3).

15. With respect to claims 16 and 17, Soled does not disclose the specifics of the solvent extraction as continuous (claim 16) or counter-current (claim 17) process.

Since solvent extraction process is well known in the refinery operation, it would have been obvious to one skilled in the art at the time the invention was made to use any effective method for extracting the charge stocks using the solvents as disclosed by Soled, including a continuous countercurrent process, as claimed.

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16. With respect to claims 18 and 19, Soled does not specifically mention about separation of extraction solvent from the extract and raffinate streams.

Since the extraction solvent is an expensive stream and usually recycled in the operation, it would have been obvious to one skilled in the art at the time the invention was made to modify Soled invention and separate extraction solvent using an effective device, including a vacuum distillation tower as claimed, to separate the solvent for re-use and make the process more economical.

17. With respect to claims 20 and 21, Soled discloses, "Dewaxing may be solvent or catalytic dewaxing. Preferred solvent dewaxing utilizes conventional solvents including ketones such as methyl ethyl ketone, methyl isobutyl ketone or mixtures thereof." (Page 8, paragraph 3).

18. Claim 22 has all the limitations of claim 1 and discussed before.

19. Claim 23 has all the limitations of claim 1 and 11 and discussed before.

20. With respect to claim 24, Soled discloses in the Table at page 59, properties of a dewaxed oil. The table shows that the oil is 370°C+ product and has a kinematic viscosity of from 23.54 to 38.72 cSt at 40°C (104°F) depending upon the catalyst and operating conditions.

Although Soled does not disclose the mid boiling point range, the invention does disclose the initial boiling point of 370°C+. Thus, it would have been obvious to one

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skilled in the art at the time the invention was made to modify Soled invention and specify the mid boiling point range for proper characterization of the finished product.

21. With respect to claim 25, Soled discloses, "The solvent or catalytically dewaxed product may then be hydrofinished in a hydrofinishing zone under hydrofinishing conditions. The conditions include temperature of from 200-370°C, pressure 150-3000 psig (1136 to 20786 kPa), liquid hourly space velocity of from 0.2 to 5.0, and a hydrogen treat rate of from 100 to 5000 scf/B (17.8 to 890 m³/m³)." (Page 9, paragraph 2).

Conclusion

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Garwood et al, US Patent 4,283,271.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prem C. Singh whose telephone number is 571-272-6381. The examiner can normally be reached on MF 7:30 AM- 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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